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Psilotris amblyrhynchus, a new seven-spined goby (Teleostei: Gobiidae) from Belize, with notes on settlement-stage larvae

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Abstract.—*Psilotris amblyrhynchus* is described from one adult and one juvenile collected in shallow waters in the vicinity of Carrie Bow Cay, Belize, Central America. Settlement-stage larvae of the new species were collected in a stationary plankton net and are used to augment the description; two of these were reared through metamorphosis. *Psilotris amblyrhynchus* is distinguished from other western Atlantic seven-spined gobies on the basis of meristic features and pigment pattern. *Psilotris* is one of 15 genera assigned by Birdsong et al. (1988) to the "*Gobiosoma* group," but the genus is not defined on the basis of derived characters. Assignment of the new species to *Psilotris* is based on its having separate pelvic fins, seven spines in the first dorsal fin, no scales, and no head pores. None of these characters by itself is unique within the *Gobiosoma* group to *Psilotris*, and the configuration of the pelvic fins is highly variable among gobies. Our inability to diagnose *Psilotris* cladistically, along with our discovery of resemblances between larvae of *Psilotris amblyrhynchus* and those of another western Atlantic member of the *Gobiosoma* group, *Nes longus*, suggest that generic concepts within the *Gobiosoma* group should be reassessed.

The gobiid genus *Psilotris* is distinguished from all other western Atlantic genera by the following combination of characters: seven spines in the first dorsal fin; pelvic fins separate; scales absent; head pores absent. These characters, while of questionable phylogenetic significance, conveniently characterize the included species. Five species are currently recognized: the type species, *Psilotris alepis* Ginsburg, 1953; *P. batrachodes* Böhlke, 1963; *P. celsus* Böhlke, 1963; *P. kaufmani* Greenfield et al., 1993; and *P. boehlkei* Greenfield, 1993. They are distinguished from one another by color pattern, fin-ray counts (Table 2), and a few proportional measurements. The specimens described here possess the four distinguishing features of *Psilotris*, but they cannot be assigned to any of the five recognized species.

Methods

Counts and measurements follow Hubbs & Lagler (1958). Institutional abbreviations follow Leviton et al. (1985). The dorsal-fin formula was proposed by Birdsong et al. (1988) to describe the relationship between the dorsal-fin pterygiophores and the neural interspaces of the vertebral column. The first digit represents the neural interspace into which the anteriormost pterygiophore inserts. The digits following the hyphen denote the number of pterygiophores that insert into each subsequent interspace. The holotype was x-rayed to obtain vertebral

Fig. 1. *Psilotris amblyrhynchus*, holotype, USNM 321019, 34.0 mm SL.

and fin-ray counts. For larvae, these counts were obtained by clearing several specimens in trypsin and counterstaining them with alizarin red and alcian blue. Adult and juvenile specimens of the new species were collected with rotenone or quinaldine. Larvae were collected in a 1.0 by 0.5-m rectangular plankton net with 505 μm mesh, fished passively over the reef flat by suspending it from a pier on the seaward side of Carrie Bow Cay, Belize. Selected captured larvae were anesthetized with MS-222, examined under a dissecting microscope, then reared in small, nylon-mesh breeder traps set in a raceway in a flow-through seawater system. Reared larvae were fed cultured brine shrimp.

Psilotris amblyrhynchus new species
Figs. 1, 2, 3A, B

Holotype.—USNM 321019 (34.0 mm SL), Belize, western Caribbean, between Carrie Bow Cay and Twin Cays, lagoon—"shot hole," 15–20 ft (4.6–6.1 m), 17 Sep 1990, G. D. Johnson, et al.

Other specimens.—USNM 347250 (1, 14.2), Caribbean, Belize, shallow spur and groove just east of Carrie Bow Cay, ca. 20 ft (6.1 m), 9 Sep 1997, C. C. Baldwin and D. G. Smith. Larvae: all collected in a stationary plankton net on seaward side of Carrie Bow Cay, Belize; USNM 350086 (1, 11.5), 10 Jun 1993, 2130 hr; USNM 350087 (2, 11.5), 13 Jun 1193, 2130 hr, cleared and stained; USNM 350088 (1, 13.0), 14 Jun 1993, 2330 hr; USNM 350089 (1, 12.5), 20 Jun 1993, 2100–2330 hr; USNM 350090 (1, 11.5), 20 Jun 1993, 2130 hr; USNM 350091 (1, 11.0), 21 Jun 1993, 2300 hr; USNM 350092 (1, 14.0), 19–22 Jun 1993, reared; USNM 350093 (1, 16.8), 28 Jul 1994, reared; USNM 350094 (2, 10.5–11.5), 8 Aug 1994, cleared and stained.

Comparative material.—Larvae of *Nes longus*, all collected in a stationary plankton net on seaward side of Carrie Bow Cay, Belize: USNM 350189 (1, 11.0), 23 Jul 1992, 2230–2300 hr; USNM 350190 (2, 10.0), 27 Jul 1992, 2000–2030 hr; USNM 350191 (1, 11.0), 27 Jul 1992, 2230n2300 hr; USNM 350192 (3, 9.5), 16 Jun 1993,

Fig. 2. *Psilotris amblyrhynchus*, larva, USNM 350088, 13.0 mm SL.

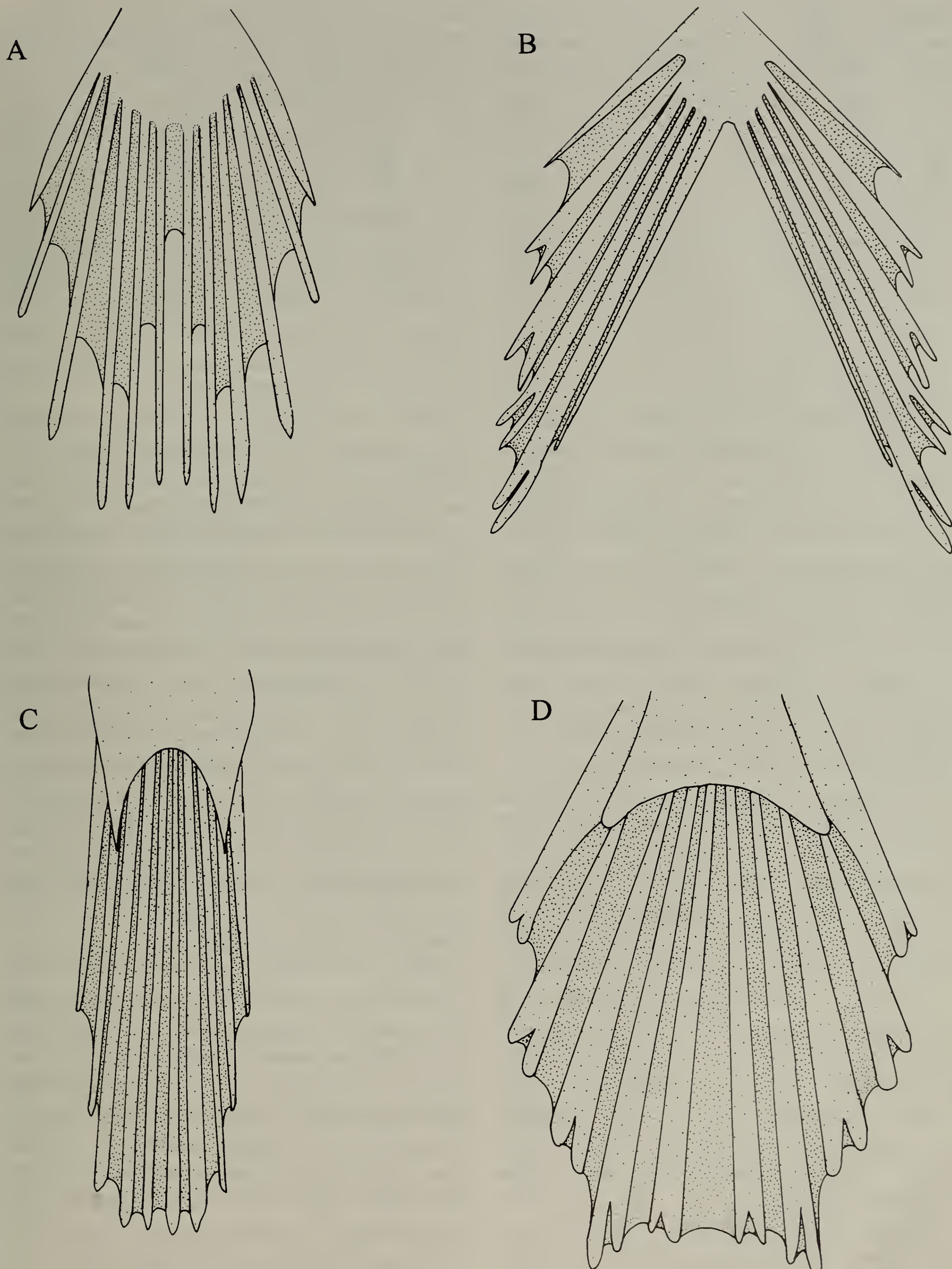

Fig. 3. Pelvic fins: development from larva to juvenile. A. *Psilotris amblyrhynchus*, USNM 350088, larva, 13.0 mm SL. B. *Psilotris amblyrhynchus*, USNM 347250, juvenile, 14.2 mm SL. C. *Nes longus*, USNM 350194, larva, 10.5 mm SL. D. *Nes longus*, USNM 350197, reared juvenile, 16.5 mm SL.

2030 hr; USNM 350193 (4, 9.0–11.0), 20 Jun 1993, 2000–2030 hr, three specimens cleared and stained; USNM 350194 (1, 10.5), 2 Sep 1996; USNM 350195 (1, 10.5), 5 Sep 1996; USNM 350196 (7, 9.5–17.0), 28 Jul 1994, reared; USNM 350197 (5, 15.0–19.3), Sep 1997, reared; USNM 350198 (1, 9.5), 12 Jun 1993, 2100 hr, cleared and stained. *Psilotris alepis*: USNM 123231 (holotype, 13 mm SL), St. Croix, Virgin Islands, 8 Apr 1937. *Psilotris batrachodes*: USNM 274946 (1, 13.0), Carrie Bow Cay, Belize, depth 12–25 ft (6–8 m), 10 Jun 1981; USNM 317025 (1, 17.8), Caribbean, Tobago, Sisters Rocks, depth to 60 ft (18 m), 14 Sep 1990; USNM 317026 (3, 7.0–8.5), Caribbean, Tobago, windward side of Little Tobago Is., depth 60 ft (18 m), 7 Sep 1990; USNM 317480 (1, 15.5), patch reef south of Carrie Bow Cay, Belize, depth 20–30 ft (6–9 m), 26 Mar 1987. *Psilotris boehlkei*: ANSP 124619 (3 paratypes, 17.5–18.2), St. Barthelmy, West Indies, Port de Gustavia, off rocky cliffs just S. of Anse Galet, depth 60–65 ft (10.3–19.8 m), 14 Jul 1965. *Psilotris celsus*: ANSP 133274 (4, 20.0–26.0), Bermuda, between Sinky and Cross Bays, off Sonesta Beach, 9.1–10.6 m, 30 Jul 1975. *Psilotris kaufmani*: ANSP 131712 (2 paratypes, 15.0–16.5), Jamaica, Discovery Bay, depth 130 ft (40 m), 16 Jun 1974. *Gobulus myersi*: USNM 347348 (3, 22–25), Belize, Pelican Cays, Manatee Cay, depth 1–3 ft (0.3–1 m), 19 Oct 1997).

Diagnosis.—A species of *Psilotris*, as currently construed, with 11–12 elements in the second dorsal fin; 9–11 anal-fin rays; pale ground color with a series of dusky blotches on side of body; small, distinct, dark spots on dorsal-fin rays; three narrow, oblique bars on caudal fin; first dorsal spine elongate in adults.

Description of holotype (Fig. 1).—A moderately elongate goby without scales or head pores. Snout short and blunt, anterior profile of head steep, no rostral frenum. Eye large, its diameter greater than snout length; interorbital space very narrow. Both nostrils tubular, the anterior one longer. Posterior end of jaw below posterior half of eye. Teeth slender, conical, slightly recurved, widely spaced, uniserial. Gill opening restricted, not extending past base of pectoral fin. Second dorsal and anal fins relatively long, the base of each longer than caudal peduncle. Anteriormost spine of first dorsal fin greatly elongate, reaching middle of base of second dorsal fin when appressed. Caudal fin elliptical, middle rays much longer than those above and below. Pelvic fins almost completely separate, only a small basal membrane connecting the inner rays of the two sides (Fig. 3B).

Measurements in mm, with proportions in parentheses: SL 34.0, preanal length 19.7 (58% SL), head length 10.0 (29% SL), snout length 2.2 (22% head length), eye diameter 2.5 (25% head length), interorbital width 0.3 (3% SL), upper-jaw length 4.8 (48% head length), depth at dorsal-fin origin 5.1 (15% SL), depth at anus 4.5 (13% SL), least depth of caudal peduncle 3.5 (10% SL), length of base of second dorsal fin 8.6 (15% SL), posterior end of dorsal fin to origin of caudal fin 3.4% 10% SL, base of anal fin 6.7 (20% SL), pectoral-fin length 8.6 (25% SL), caudal-fin length 9.7 (29% SL), pelvic-fin length 5.8 (17% SL). Meristic features: dorsal-fin rays VII+12, anal-fin rays 11, pectoral-fin rays 17, branchiostegal rays 5, vertebrae 11 + 16 = 27, dorsal-fin formula 3-221110.

Color in alcohol: Ground color pale yellowish brown, with dusky markings as follows: diffuse dark spot on cheek below eye; dark oblique streak from just behind opercle to dorsum directly above pectoral base and before dorsal origin; a diffuse spot on pectoral base; approximately 16 diffuse dark saddles, irregular and uneven in intensity, from nape to base of caudal fin; approximately seven diffuse midlateral blotches on body between pectoral fin and base of caudal fin, with smaller blotches in between; discrete, small, dark spots on dorsal-fin spines and rays; three oblique dark bars on caudal fin, oriented anterodorsal to posteroventral.

Table 1.—Meristic characters for specimens of *Psilotris amblyrhynchus*. c = cleared and stained. x = x-rayed.

USNM	SL in mm	Dorsal rays	Anal rays	Pectoral rays	Vertebrae
321019x	34.0	VII + 12	11	17	11 + 16 = 27
347250	14.2	VII + 11	10	—	—
350092	14.0	VII + 11	9	17	—
350093	16.8	VII + 11	10	—	—
350087c	11.5	VII + 12	11	19	11 + 16 = 27
350087c	11.5	VII + 12	11	19	11 + 16 = 27
350094c	11.0	VII + 11[1]	11	18	11 + 16 = 27
350094c	11.5	VII + 12	10	18	11 + 16 = 27

[1]Eleven rays but 12 pterygiophores.

Other specimens.—Only one adult specimen, the holotype, is known, and the description is based on it. We have also collected 12 immature specimens, including a small, field-caught juvenile and 11 larvae, two of which were reared through transformation. None of these specimens has the full complement of adult characters, and we therefore do not designate them as paratypes. Nevertheless, they do provide additional meristic data that help characterize the species. Four of the larvae were cleared and stained, and their counts are presented in Table 1, along with counts from the field-caught juvenile and the two transformed larvae. Of the eight specimens for which counts are available, all have seven spines in the first dorsal fin. Four specimens have 12 elements in the second dorsal fin, and four have 11. In one of the latter, however, the penultimate pterygiophore does not support a ray; the specimen thus has 12 pterygiophores but only 11 rays. Fin rays can be difficult to count in small specimens, especially when the fin is depressed, as it is in most of the specimens. The only way to obtain unambiguous counts is to x-ray the specimen (if it is large enough) or to clear and stain it. Of the five specimens subjected to one of these techniques, four have 12 second-dorsal elements, and the fifth has 11 rays but 12 pterygiophores. Four of these five also have 11 anal-fin rays. The three specimens that were simply counted by gross examination have 11 second dorsal-fin elements and 9–10 anal rays. The pectoral-ray counts obtained were also higher in the cleared and stained specimens (18–19) than in the alcohol specimens (17), suggesting to us that we may be undercounting the fin rays in gross examination.

The field-caught juvenile (USNM 347250, 14.2 mm SL) was photographed shortly after capture and had the following color pattern: a few melanophores on side of opercle and on base of pectoral fin; one melanophore immediately above opercle on right side; one or two melanophores behind eye and on top of head above brain; a single small melanophore on ventral midline just behind anal fin; a small melanophore on fifth dorsal spine; a few small melanophores on snout and upper jaw; three indistinct yellow stripes on head, originating from upper, middle, and lower margin of eye and extending approximately to posterior end of opercle; a few indistinct yellow spots along base of dorsal fin.

Development.—The settlement-stage larvae (Fig. 2) are characterized by a large, very conspicuous, expanded melanophore midventrally over the posterior end of the anal fin. There is very little other pigment, only some internal melanophores on the dorsal surface of the gas bladder and at the posterior end of the intestine, and a dark midventral streak immediately before the pelvic fin. The caudal fin is truncate rather than elliptical. The pelvic fins are largely united, the rays of the two sides nearly parallel rather than sharply diverging (Fig. 3A). The membrane connecting the inner-

Table 2.—Meristic characters in species of *Psilotris.*

Species	Dorsal rays	Anal rays	Pectoral rays
P. alepis	VII + 10	9	15
P. batrachodes	VII + 9–10	7–8	16
P. boehlkei	VII + 10–11	10	16–18
P. celsus	VII + 10–11	9–11	16–17
P. kaufmani	VII + 10–11	10–11	16–19
P. amblyrhynchus	VII + 11–12	9–11	17–19

most rays of the two sides extends approximately ⅓ to ½ of the way from the base to the tip. There is no frenum connecting the spines, however. The largest of the larvae collected in the plankton net are about 11.5 mm SL. The 14.0-mm reared specimen still has the conspicuous ventral melanophore, but it is smaller relative to the size of the body. The pelvic fins appear more divergent, and the membrane connecting the medial rays is greatly reduced, extending not more than about an eighth of the distance from the base of the rays to their tips. The caudal fin is more elongate, but the middle rays are not greatly prolonged. The 16.8-mm reared specimen retains the midventral melanophore, but it is even less conspicuous than in the 14.0-mm specimen. A few melanophores are present along the base of the dorsal fin, but no other pigment is visible. The pelvic fins are almost completely separate, and they diverge strongly. The membrane connecting the medial rays is restricted to the base of the rays. The caudal fin is rounded, although the elongation of the middle rays is still not extreme. The first dorsal spine is not elongate. The field-caught juvenile, although smaller (14.2 mm SL) than the larger of the two reared specimens, is slightly more developed. The ventral melanophore is still present but is small and contracted. Definitive pigment as described above is beginning to appear. The pelvic fins are separate and diverge strongly (Fig. 3B). The caudal fin has still not attained the elongation seen in the holotype, and the first dorsal spine is not elongate.

Distribution and habitat.—*Psilotris amblyrhynchus* is currently known only from the vicinity of Carrie Bow Cay on the barrier reef in Belize, western Caribbean (16°48′N, 88°05′W). The holotype was collected between Carrie Bow Cay and Twin Cays in one of a series of "shot holes" created by seismic sounding. The habitat was described as an open sand patch in beds of turtle grass (*Thalassia testudineum*) at a depth of 15–20 feet (4.5–6.1 m). The field-caught juvenile was taken from the shallow spur and groove reef complex just seaward of Carrie Bow Cay at a depth of approximately 20 feet (6.1 m).

Etymology.—From the Greek *amblys*, blunt, obtuse; and *rhynchos*, snout, muzzle. In reference to the blunt anterior profile of the head. To be treated as a noun in apposition.

Key to the species of *Psilotris* (modified from Greenfield, 1993)

1a. Pectoral fin with dark brown to black bar running dorsoventrally at a posterior angle across fin; dorsal and caudal fins also with dark bars; anal-fin elements 7 or 8 (usually 7); second dorsal-fin elements 9–10 (nearly always 9) .... *P. batrachodes*

1b. Pectoral fins lacking bar running dorsoventrally at a posterior angle across fin, fin is bicolored (upper half black) or unpigmented; anal-fin elements 8–11 2

2a. Pectoral-fin rays 15; anal-fin elements 8–9 .... *P. alepis*

2b. Pectoral-fin rays 16–19; anal-fin elements 9–11 3

3a. Caudal fin with 3 oblique, dark

bars; snout very short and blunt, with steep anterior profile; second dorsal-fin elements 11–12 .... *P. amblyrhynchus*

3b. Caudal fin without 3 oblique, dark bars; snout more acute, with flatter anterior profile; second dorsal-fin elements 10–11 4

4a. Pectoral fin bicolored, dark brown to black on upper 9–11 rays and membranes and white below; anal-fin elements 10–11 (usually 11) .. .. *P. kaufmani*

4b. Pectoral fin not bicolored; anal-fin elements 9–11 (usually 10) 5

5a. Posterior end of jaw extending past posterior margin of pupil; caudal peduncle slender (80–89 thousandths of SL); snout short (44–55 thousandths of SL) ..... *P. boehlkei*

5b. Posterior end of jaw not extending past posterior margin of pupil; caudal peduncle deeper (greater than 92 thousandths of SL); snout longer (greater than 55 thousandths of SL) .... *P. celsus*

Comparison and Relationships

"Anyone who has attempted to identify the naked or partially scaled Atlantic gobies in and around the genera *Gobiosoma* and *Garmannia* will appreciate the difficulty experienced in placing even generically any specimen." With those words, Böhlke & Robins (1968:47) began their study of New World seven-spined gobies, which remains the most comprehensive treatment of the group. They included 17 genera in their key (Böhlke & Robins 1968:51): *Psilotris*, *Varicus*, *Chriolepis*, *Gobulus*, *Nes*, *Pycnomma*, *Gymneleotris*, *Eleotricus*, *Risor*, *Parrella*, *Barbulifer*, *Enypnias*, *Bollmannia*, *Aruma*, *Microgobius*, *Ginsburgellus*, and *Gobiosoma*. Four other genera were subsumed as subgenera under an expanded concept of *Gobiosoma*: *Austrogobius*, *Elacatinus*, *Garmannia*, and *Tigrigobius*. Böhlke & Robins (1969) added two more genera, *Evermannichthys* and *Pariah*. They excluded *Parrella*, *Microgobius*, and *Bollmannia* from their analysis of relationships because "*Parrella* is a composite and the other two are only distantly related" (Böhlke & Robins 1968:146). The resulting diagram (Fig. 4) expressed Böhlke & Robins's concept of relationships among the 16 genera and five subgenera. This is not a classification based on cladistic methods, which had not yet come into wide use, and the genus *Gobiosoma* as construed by Böhlke & Robins is a classic paraphyletic group. Nevertheless, by resurrecting *Austrogobius*, *Elacatinus*, *Garmannia*, and *Tigrigobius*, one can extract a generic phylogeny from the diagram, even though the characters on which it is based are not shown, and this phylogeny can serve as a testable hypothesis.

Birdsong (1975:180), although still not using phylogenetic methods, considered the American seven-spined gobies to be a "natural assemblage," based largely on vertebral number (11 + 16–17) and dorsal-fin formula (3-221110), characters that he observed to be "extremely stable". . . with many groups of gobioids." He placed the 17 genera from Böhlke & Robins's (1968: 51) key, plus *Evermannichthys*, *Pariah*, and *Palatogobius*, in the tribe Gobiosomini (Birdsong 1975:182, properly spelled Gobiosomatini). He noted that the "*Gobiosoma* group" is united by a distinctive character, the fusion of hypurals 1–2 with hypurals 3–4 and the urostyle, but he did not provide a list of genera in that group. Birdsong stated only that he found this character state in four subgenera of *Gobiosoma* as well as in nine genera presumably derived from *Gobiosoma*. He further noted that *Microgobius*, *Bollmannia*, *Parrella*, and *Palatogobius* do not show this fused caudal condition and thus are excluded from the *Gobiosoma* lineage. Birdsong et al. (1988: 189) treated the "*Gobiosoma* group" as comprising 17 genera: Birdsong's (1975: 182) Gobiosomatini minus the "*Microgobius* group," and with the questionable ad-

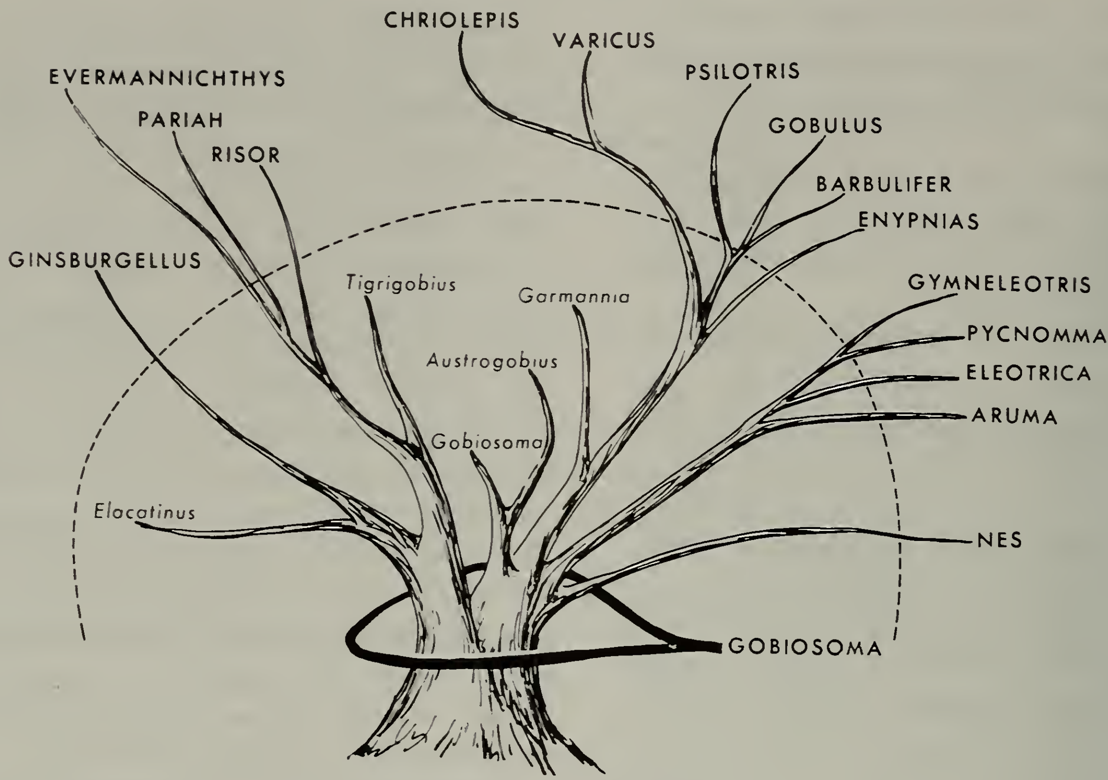

Fig. 4. Diagram of relationships (from Böhlke & Robins 1969).

dition of *Ophiogobius*, an eastern Pacific genus.

Psilotris is a member of the Gobiosomatini of Birdsong (1975) based on the presence of seven dorsal spines, 11 + 16–17 vertebrae, and a dorsal-fin formula of 3-221110. It further belongs to the "*Gobiosoma* group" by virtue of its fused hypural elements. In Böhlke & Robins's (1968:51) key to genera, *Psilotris* falls out in the first couplet along with *Varicus*, *Chriolepis*, *Gobulus*, and *Nes*, all characterized by the absence of head pores. Within this group, the genera are separated by the presence or absence of scales and by the form of the pelvic fins, either united or separate. Böhlke & Robins made no claim that their key is anything more than a convenient way to identify specimens. Nevertheless, it is intriguing that four of the five genera are adjacent on Böhlke & Robins's tree (Fig. 4). The lone outlier is *Nes*, which arises from near the base of another branch. *Nes*, however, is of special interest to us, as we have collected larvae of *Nes longus* and reared them through transformation. Larvae of *Nes longus* and *Psilotris amblyrhynchus* are strikingly similar, both having a very large melanophore on the ventral midline at the posterior base of the anal fin. Indeed, at first we did not separate larvae of the two species. It was only after our reared specimens transformed into two distinct species that we reexamined the larvae and recognized the difference. Larvae of *Nes longus* have a second midventral melanophore at the anterior base of the anal fin, in addition to the large one at the posterior end.

The most obvious difference between adults of *Nes longus* and *Psilotris amblyrhynchus* is the form of the pelvic fins. Throughout the ontogeny of *Nes*, the pelvic fins of the two sides are completely fused, and there is a well developed frenum between the spines (Fig. 3C, D). In juvenile and adult *Psilotris amblyrhynchus* the pelvic fins are almost entirely separate, with only a rudimentary membrane between the bases of the inner rays (Fig. 3B). As distinctive as this character may seem, it is subject to great variation among gobies, even among closely related species. Within the genus *Coryphopterus*, for example, the pelvic-fin condition spans the complete spectrum from fully fused to separate. In larvae of *Psilotris amblyrhynchus*, the pelvic fins are largely united (Fig. 3A), the interradial membrane retreating during transformation (Fig. 3B); this suggests that the separate pelvic fins are secondarily derived. Although the character is often treated dichotomously (united vs. separate) in keys such as Böhlke & Robins's, the condition is not so clear-cut. *Gobulus*, for instance, is keyed out by choosing "ventral fin united," yet *Gobulus* has no interspinal frenum, and the membrane between the inner rays of the two sides extends no more than a third of the way from the base of the ray to its tip. This condition is actually closer to that in *Psilotris* than in *Nes*. With only a slightly greater reduction of the interradial membrane in *Gobulus*, the distinction between it and *Psilotris* would disappear.

The other distinctions between *Nes longus* and *Psilotris amblyrhynchus* are the greater elongation of the body with age in *Nes* and the presence of an extra vertebra (28 rather than 27). Resemblances between the two species are the steep anterior profile of the head, with its large eye and short snout, and the elongate first dorsal spine in adults.

There is no unique feature that distinguishes *Psilotris* from the other members of the "*Gobiosoma* group." It is characterized only by the combination of three character states: no scales, no head pores, and separate pelvic fins. Each of these characters shows a wide range of conditions. For example, some genera are completely scaled from head to tail, some are partially scaled, some have only two small scales at the base of the caudal fin, and some have no scales at all. The number of pores also varies; sometimes within a single species certain pores can be present or absent. The variability in pelvic-fin condition has already been discussed. The trends within the evolution of these characters cut in different ways across genera. Greenfield (1993:773) correctly pointed out that *Psilotris* is not defined by any shared derived characters, and the species are not very similar in general appearance. *Psilotris alepis* (the type species) and *P. batrachodes* seem most different from *P. amblyrhynchus*. They are both small, relatively stubby gobies with low fin-ray counts. Neither has an elongate dorsal spine, and the anterior head profile is different. *Psilotris celsus* has two elongate dorsal spines rather than one as in *P. amblyrhynchus*. This species is also relatively stubby, and the eye and mouth are smaller than those of *P. amblyrhynchus*. The teeth of *P. alepis*, *P. batrachodes*, and *P. celsus* are described as being in several to many rows on the jaws, as opposed to the widely spaced, uniserial pattern found in *P. amblyrhynchus*. *Psilotris kaufmani* also has the first two dorsal spines elongate (based on fig. 1 in Greenfield et al. 1993, though it was not mentioned in the text). The color pattern of *P. kaufmani* is quite different from that of *P. amblyrhynchus*, it has a much shallower snout profile, it has fewer second-dorsal-fin elements (10–11 vs. 11–12), and it inhabits deeper areas of reefs and dropoffs. *Psilotris boehlkei* lacks elongate dorsal spines (again based on the figure in Greenfield, 1993, as the character was not mentioned in the text), and it has fewer second dorsal-fin elements (10–11).

Our assignment of the new species to *Psilotris* must be considered tentative pending further study of generic concepts among seven-spined gobies. Although larval morphology suggests a possible relationship between *Psilotris amblyrhynchus* and *Nes longus*, little comparative information is available on larval morphology of other species of the "*Gobiosoma* group."

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